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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,355	02/13/2007	Martin Daferner	710.1032	2370

7590 10/02/2009

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EXAMINER	
DUNN, DARRIN D	

ART UNIT	PAPER NUMBER
2121	

MAIL DATE	DELIVERY MODE
10/02/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,355	DAFERNER ET AL.	
	Examiner	Art Unit	
	DARRIN DUNN	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02/13/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-36,40,42- 44, 54-59* is/are rejected.

7)☒ Claim(s) *37-39,41 and 45-53* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02/13/2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/06/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Office Action is responsive to the communication filed on 02/13/2007.

2. Claims 30-59 are pending in the application.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/552355, filed on 02/13/2007. Applicant's foreign priority date is 04/09/2003.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 10/06/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 30-33, 35, 40, 42-44, 54, and 56-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nam (USPN 6141598) in view over Madden et al. (USPN 6801821) and in further view over Conboy et al. (USPN 6411859)

8. As per claim 30, Nam teaches a method for automatically controlling a production process for the series production of order-specific products, the production process including a first and a second subprocess, the method comprising:

generating a sequence of orders (e.g., ORDER NO.) existing in electronic form for products (e.g., vehicles) that are manufactured in the production process ([Figure 3]) ([ABSTRACT], [Figure 2A], [Figure 4B]);

manufacturing a sequence of production objects in the first subprocess (e.g., Body Assembly) in accordance with the order sequence ([Figure 3]);

carrying out a selection process, in which a production object of the production object sequence and an order of the order sequence, which match one another, are selected ([Figure 4B] e.g. the claim is interpreted that an order and product are associated together for the purpose of manufacturing the product. It is implied that the order and product are tracked together, which in effect, require that the order match the product);

manufacturing, from the selected production object in the second subprocess (e.g., PAINT ASSEMBLY), a product in accordance with the selected order ([Figure 3]);

repeating the selection process and the product manufacturing until a product is manufactured for each order of the order sequence ([Figure 3], [Figure 4B] e.g., the art us best understood as selecting an order, associating a product with the order, and placing producing the product in accordance with a sequence, i.e., body, paint, and trim assembly. The process is repeated); wherein

the production process includes a sorting buffer ([Figure 1], [Figure 7] e.g., BUFFER) for production objects which has a fixed maximum number of available spaces for production objects ([Figure 1], [COL 4 lines 28-64] e.g., a small factory has a predetermined range set at five vehicles, i.e., maximum available spaces);

when a first order of the order sequence neither matches a production object in the sorting buffer nor the first production object of the production-object sequence ([Figure 7] e.g., when a product is placed out of sequence, as in the case of repairing the vehicle before it enters the buffer, this vehicle could therefore be located outside the buffer. As a result, the order for this vehicle may or may not match a product within the buffer. Thus, there is a need to look for other vehicles matching the order specification for the vehicle out of sequence, as in the case of repair work. In a first case, there is a product in the buffer matching the order, which would enable the order be matched to a product in the buffer. In a second case, there may not be a matching vehicle in the buffer, and therefore there is a need to look for other vehicles outside the buffer and ahead in production, i.e., upstream of the removed vehicle. Nam teaches matching an order to a vehicle specification ([Figure 2A], [Col 5 lines 1-5]). Nam teaches a sorting buffer ([Figure

7]) Nam teaches that vehicles become mis-sequenced ([Col 6 lines 25-27]) Madden teaches tracking, locating, matching, and moving a vehicle from a first location to a second location ([ABSTRACT], [Figure 1B], [Col 2 lines 45-67], [Col 4 lines 20-67], [Col 6 lines 50-57] Madden teaches moving a vehicle up in production to avoid delay ([Figure 1B]).

Therefore, at the time the invention was made, one of ordinary skill in the art would first ensure that an order matches a vehicle in the buffer. If a match is not found, i.e., when a first order does not match an object in the sorting buffer, then look to other vehicles that may match this order. Here, it is obvious to identify other vehicles ahead in production, i.e., more complete and considered upstream of the defective vehicle, and then determine if this other vehicle matches the order. If so, then re-locate the vehicle to the buffer for processing. It is therefore important to ensure there is space for this vehicle to be placed in the buffer.

However, Nam, as modified, does not teach checking whether free spaces are available in the sorting buffer for all production objects residing in the production-object sequence upstream of a production object that matches the first order (e.g., the claim is interpreted that when the buffer does not have a product matching the order, then check other products|vehicles within the assembly line happen to match the order. Since the removed vehicle is considered downstream (e.g. less complete in production and therefore any vehicle more complete in production is upstream), then a check would be made for any vehicles ahead in the assembly process that would match the order specifications for the removed vehicle. If a match is found, then transfer the matching vehicle to the buffer for processing. It is therefore important to ensure there are free spaces available in the buffer for this matching vehicle. Applicant's published specification paragraphs [0078] is best understood as describing the limitation)

Conboy et al. solves the pertinent problem of ensuring free space is available before transferring a product into storage ([COL 4 lines 36-40] e.g., PMAX)

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to ensure free space is available in the buffer prior to placing a matching vehicle outside the buffer into the buffer for processing. Madden teaches tracking all vehicles at every stage of production, relocating a removed vehicle that is considered behind in production to a location ahead in production ([Figure 5] e.g., Madden is applied as to give weight to the argument that any vehicle outside the buffer may be tracked, located, and matched to an order. Nam teaches the matching process ([Figure 7]. As applied, a vehicle can be matched and relocated to any location in the assembly line. In effect, if the buffer does not have a matching vehicle, locate the vehicle using the teachings of Madden. Match the vehicle to a order as taught by Nam. Then, move this matching vehicle into any location, as taught by Madden)

when a sufficient number of free spaces is available, selecting the first order and the matching production object of the production-object sequence (e.g., interpreted that out of sequence vehicle, as in the case of a removal, is matched to an order and possibly placed back into the buffer. If free space is available and a vehicle matching the order is found , i.e., selecting the first order and production object, then this matching vehicle may be placed into the buffer. Supra Madden ([Figure 5]. Supra Nam ([Figure 4-6]);

and placing all production objects of the production-object sequence upstream of the selected production object in the sorting buffer (e.g., the claim is interpreted that in case a match is made to an order outside the buffer, that other vehicles in sequence would still continue to be placed into the buffer for processing, i.e., placing all production objects upstream of the selected

product, i.e., matching an order to a removed vehicle. As a result, all vehicles ahead of the removed vehicle would continue to enter the buffer. If other orders have higher priority over the mis-sequenced order, then these vehicles would be placed into the buffer before the matching vehicle, i.e., matching production object and placing all vehicles ahead of the removed vehicle, into the buffer. An upstream vehicle is also interpreted as being ahead in the production process, whether due to its physical location or level of completeness. With regard to placing all vehicles upstream of the selected object, Madden teaches the application of prioritizing ([COL 4 lines 20-67] e.g., as applied, production objects, i.e., vehicles, are placed into the buffer. These products may have a higher priority over any other order. When an order is mis-sequenced, as in the case of removing the vehicle for repair, the order may not match any vehicle within the buffer. Then, the order would be matched to a vehicle outside production. Using the teachings of Madden, this vehicle could be placed back into the buffer. However, when free space is available, the other vehicles upstream of this matching order may have a higher priority, and therefore be placed into the sorting buffer, i.e., placing all objects upstream of the selected order into the sorting buffer, prior to moving the selected object, i.e., matching order.)

9. As per claim 31, Nam teaches the method as recited in claim 30 wherein:

each order includes features of the product to be manufactured in accordance with order- specific instructions ([Figure 2A], [Col 4 lines 15-30]);

each production object includes features which are manufactured in the first subprocess ([figure 5]); and

in the test for determining whether a production object and an order match one another, the

production-object features are compared to a subset of the product features ([Figure 5], Figure 7] e.g., a orders are matched to products and verified, i.e., a test

10. As per claim 32, Nam teaches the method as recited in claim 31 wherein a production object and an order are assessed as matching one another when every product feature of the order belonging to the subset is consistent with all of the features of the production object ([COL 4 lines 37-67] e.g., an order otherwise associated with a first vehicle has specific attributes. When these attributes of the order match other vehicles with identical attributes, then a match is made)

11. As per claim 33, Madden teaches the method as recited in claim 31 wherein one feature that is drawn on for the comparison is the latest point in time by when the product is to be completed ([COL 6 lines 31-50] e.g., as applied to Madden, i.e., prioritizing, is obvious that the point in time when a vehicle is to be completed would preclude that vehicle from being selected to replace the vehicle removed from production. Thus, the order would not be assigned to this vehicle because of different deadline requirements associated with vehicles having higher priority)

12. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nam (USPN 6141598) in view over Madden et al. (USPN 6801821) and in view over Conboy et al. (USPN 6411859) and in further view over Rouse et al. (USPN 20010042060)

13. As per claim 34, Nam does not teach the method as recited in claim 31 wherein each product feature is provided with a weighting; when comparing a production object with an order using these weightings, a degree of correspondence is determined; and a production object and an order are then assessed as matching one another when the degree of correspondence reaches

or exceeds a predefined bound. Rouse et al. teachers applying Euclidean distance principles for providing similarity measures between two objects ([0089])

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to implement similarity measures to compare attributes associated with an order to attributes of vehicles matching the order. Since a vehicle may be removed for repair, the order corresponding this vehicle is mis-sequenced. In the event the order does not match any vehicle with the buffer, other vehicles may be selected. By implementing similarity measures, a vehicle may be matched to the order from a plurality of other vehicles.

14. As per claim 35, Nam teaches the method as recited in claim 30 wherein, during the selection process, when the first order of the order sequence matches a production object in the sorting buffer, the order and the production object are selected, and the production object is removed from the sorting buffer ([Figure 4-7] e.g., vehicles in the buffer are re-sequenced and the moved onto the next stage)

15. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nam (USPN 6141598) in view over Madden et al. (USPN 6801821) and in view over Conboy et al. (USPN 6411859) and in further view over Lu (USPN 6983189)

16. As per claim 36, Nam, as modified, does not teach the method as recited in claim 30 further comprising creating an initially empty electronic buffer memory for orders, and, when a first order of the order sequence neither matches a production object in the sorting buffer nor the first production object of the production-object sequence, and when there is an insufficient number of free spaces available in the sorting buffer, the first order is placed in the buffer memory. Lu et al. teaches creating an electronic buffer for orders ([Figure 2a- element 60],

backlogging the order, i.e., when the order does not match a production object in the buffer and there's an insufficient number of free space available ([Col 5 lines 57-62])

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to buffer an order that otherwise cannot be processed. Since it is possible that a mis-sequenced order may not be matched to any vehicle in the buffer, any vehicle outside the buffer, and or cannot be completed for any other reason, it is therefore obvious to backlog this order so as to ensure it may still be processed. It is foreseeable that order to vehicle imbalance may occur, and orders that cannot be processed due to non-matching vehicles should be stored in a buffer until ready for processing.

17. As per claim 40, Nam, as modified, teaches the method as recited in claim 30 wherein, in accordance with the order sequence, a sequence of order-specific subsystems are manufactured and used in the second subprocess for manufacturing the products; the production process includes a sorting buffer for subsystems; and a subsystem, which was manufactured on the basis of a deferred order, is placed, before being used, in a free space of the subsystem sorting buffer (e.g., as modified, a deferred order, i.e., removed vehicle, may be returned to the buffer for processing, supra claim 30 discussion)

18. As per claim 42, Nam teaches the method as recited in claim 30 wherein the sequence of orders in the order sequence prior to the first selection process is compared to the sequence in which the orders are selected ([Figure 3], [Figure 7]), and for each order, a relative position in the selection sequence is determined in comparison to the position in the order sequence (e.g. re-sequencing) , a positional quality (e.g., not defined, but interpreted as a a value pertaining to

position. Here, the location of vehicle relative to the order corresponds to a position quality. of the production process being computed from relative positions of all of the orders.

19. As per claim 43, Madden teaches the method as recited in claim 42 wherein, when calculating the positional quality, a greatest value of all relative positions, a smallest value of all relative positions, and/or the average value of all relative positions are determined ([COL 4 lines 20-67] e.g., prioritizing is interpreted as determining a value associated with a vehicle location, giving a range of low to high priority with high priority corresponding to a greatest value of all positions)

20. As per claim 44, Nam teaches the method as recited in claim 30 wherein the sorting buffer ([Figure 7-element WPS) includes a plurality of sorting sub-buffers (e.g., spaces within buffer) for production objects; and before a production object is placed in the sorting buffer (e.g., as modified by Madden, a matching vehicle could be placed if empty spaces are available), a sorting sub-buffer is automatically selected (e.g. which space of the buffer will the incoming vehicle be placed into) and the production object is placed in the sorting sub-buffer (e.g., depending on point in production, a particular buffer is selected)

21. As per claim 54, Nam, as modified, teaches a device for automatically controlling a production process for the series production of order-specific products, the production process including a first and a second subprocess, a sequence being provided of orders existing in electronic form, for products that are manufactured in the production process, a sequence of production objects being manufactured in the first subprocess in accordance with the order sequence, the device comprising:

means for implementing a selection process (Applicant's published specification, paragraph

[0223], is best understood as the corresponding hardware, i.e., master computer, used for implementing the selection process for selecting a production object of the production-object sequence and an order of the order sequence which match one another; and from the selected production object in the second subprocess, a product being manufactured in accordance with the selected order. As per Nam, [Figuce 3-element 200] corresponds to a computer for implementing the function of matching an order to a vehicle. Supra claim 30 discussion);

a sorting buffer (Applicant's published specification, paragraph [0149], refers to the sorting buffer. Nam, as modified, teachers a sorting buffer ([Figure 7], supra claim 30 discussion) which has a fixed maximum number of available spaces for production objects;

means for checking whether a production object of the production-object sequence and an order of the order sequence match one another (Applicant's published specification, paragraph [0223], implements a master computer as the corresponding hardware for checking whether a production object matches an order. Nam teaches that a computer likewise ensures that an order matches a particular vehicles specifications ([Figure 3-element 200, re-specification implies that an order is matched to a vehicle with desired attributes);

means for checking (applicant's published specification, [0223], is best understood as using a master computer for executing the checking process. Nam, as modified, teaches the use of a computer to determine whether or not an object in the buffer matches an order, supra claim 30 discussion) whether a production object in the sorting buffer and an order of the order sequence match one another;

means for checking (applicant's published specification, [0223], is best understood as using a master computer for executing the checking process. Nam, as modified, teaches the use of a

computer to determine whether or not an object in the buffer matches an order, supra claim 30 discussion) whether free spaces are available in the sorting buffer for all production objects residing in the production-object sequence upstream of a production object that matches the first order; and

means for placing a production object (applicant's specification refers to the placing means in the context of paragraphs [0142] , [Figure 2] , which is best understood as implementing an assembly line as the hardware for placing the object into the buffer. Nam, as modified, by Madden, teaches the use of a conveyor system to move the vehicles, supra claim 30 discussion) of the production-object sequence in the sorting buffer.

22. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nam (USPN 6141598) in view over Madden et al. (USPN 6801821) and in view over Conboy et al. (USPN 6411859) and in further view over Lu (USPN 6983189)

23. As per claim 55, Lu teaches the device as recited in claim 54 wherein the device includes an electronic buffer memory for orders ([Col 5 lines 57-62] e..g, backlog buffer); means for placing an order in the buffer memory ([Col 5 lines 57-62] e.g., order handlers) ; means for checking whether a production object of the production-object sequence and an order in the buffer memory match one another (supra claim 54 discussion pertaining to the use of a computer for performing the 'matching' logic used to select an order and vehicle); and means for removing an order from the buffer memory (e.g. order handler)

24. As per claim 56, teaches Nam, as modified, teaches the device as recited in claim 54 wherein the device includes a second sorting buffer ([Figure 7 –element PBS) for subsystems which are manufactured in accordance with the order sequence and are used in the second

subprocess for manufacturing the products; and means for placing such a subsystem in the subsystem sorting buffer ([Col 5 lines 17-20] e.g., assembly line control system)

25. As per claim 57, teaches the device as recited in claim 54 wherein the sorting buffer ([Figure 7-element WBS) includes a plurality of sorting sub-buffers (e.g., spaces within buffer) for production objects; and the device includes means for automatically selecting a sorting sub-buffer (e.g., re-sequencing entails choosing a particular space and/or based on the discussion in claim 30, choosing where to place a vehicle back into the buffer. This would entail choosing a space), and means for placing a production object into a selected sorting sub-buffer (e.g., assembly line control system)

26. As per claim 58, Nam teaches the device as recited in claim 57 wherein the means for automatically selecting a sorting sub-buffer include means for generating a current valuation of each sorting sub-buffer ([Figure 7] e.g., evaluating the available space, location of the vehicle in each space, and as modified, determining if free space is available) with respect to a production object to be placed; and means for using the valuations for selecting a sorting sub-buffer (e.g., as modified, if a free space is available, this space may be selected, i.e., selecting a sorting sub-buffer. A sub-buffer is interpreted as a sub-space of the main buffer)

27. As per claim 59, Nam, as modified, teaches a device for automatically controlling a production process for the series production of order-specific products, the production process including a first and a second subprocess, a sequence being provided of orders existing in electronic form, for products that are manufactured in the production process, a sequence of production objects being manufactured in the first subprocess in accordance with the order sequence, the device comprising:

a selector ([Figure 3-element 200. A computer is applied to implement to process of matching an order to a vehicle) implementing a selection process for selecting a production object of the production-object sequence and an order of the order sequence which match one another; and from the selected production object in the second subprocess, a product being manufactured in accordance with the selected order ([Figure 3 e.g., the manufacturing steps are elaborated for producing a vehicle);

a sorting buffer for production objects which has a fixed maximum number of available spaces for production objects ([Figure 1],[COL 4 lines 28-64] e.g., a small factory has a predetermined range set at five vehicles, i.e., maximum available spaces) ;

a comparator checking ([Figure 2A] e.g., as applied, a computer is implemented to ascertain whether an order matches a body type. Based on the application of re-sequencing, it is implied that vehicles are matched to the order. If a match is not found, then go through the vehicles to locate one that matches an order) whether a production object of the production-object sequence and an order of the order sequence match one another;

a second comparator ([Figure 7] e.g., as applied, a computer is implemented as a comparator for implementing the logic for comparing an order to a vehicle. Since re-sequencing occurs in the buffer, it is implied that it is first necessary to match the appropriate order to its vehicle) for checking whether a production object in the sorting buffer and an order of the order sequence match one another;

a free space determiner (e.g., as modified by Conboy et al., the pertinent problem of ensuring free space is available before transferring a product into storage ([COL 4 lines 36-40] e.g., PMAX. A computer is applied, ie., free space determiner, for ensuring that the buffer in Nam

would have enough space to accommodate extra vehicles) for checking whether free spaces are available in the sorting buffer for all production objects residing in the production-object sequence upstream of a production object that matches the first order; and

a placement device for placing a production object of the production-object sequence in the sorting buffer ([Col 5 lines 18-20] e.g., assembly line control system, i.e., placement device)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARRIN DUNN whose telephone number is (571)270-1645. The examiner can normally be reached on EST:M-R(8:00-5:00) 9/5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DD/
09/28/09

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